Universidad de los Andes
Facultad de Ciencias

DEPARTAMENTO DE MATEMÁTICAS

OFRECIMIENTOS DE CURSOS NUEVOS

2013 - 1

Código Curso MATE-...	**Nombre del curso: Algebraic Topology 2**	**Créditos/horas: 4**
	Profesor: Mainak Poddar	
Prerrequisitos: Algebraic topology 1, Differential geometry		
Objetivos: The guiding principle in this course is to use differential forms as an aid to explore and understand some of the foundations of algebraic topology such as cohomology theories, Poincare duality, Thom isomorphism, etc. We will mainly confine ourselves to smooth manifolds. The advantage is that we get a more concrete and intuitive picture of some intricate methods of algebraic topology. The techniques and ideas learnt here are very useful in thinking about a lot of things such as spectral sequences, characteristic classes, complex geometry etc. We will use the book of Bott and Tu, a classic, as the main text with Warner's book as a supplement.		
Contenido: Differential forms, de Rham complex, orientation and integration, Poincare lemma, homotopy invariance of de Rham cohomology, compactly supported cohomology, Mayer Vietoris technique, finite dimensionality of de Rham cohomology, Poincare duality, Leray-Hirsch theorem, vector bundles, reduction of structure group, Thom isomorphism, Poincare duality and Thom class, Euler class, Cech-de Rham complex, spectral sequence, generalized Mayer-Vietoris principle, isomorphism between Cech and de Rham cohomology, sphere bundles, Hopf index theorem, singular homology, isomorphism of singular and de Rham homology, harmonic forms, the Hodge theorem.		

Ofrecimiento de Cursos
Luisa Fernanda Vargas
Asistente Académica

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Forma de Evaluación:

2 partial exams and 1 final exam.

Bibliografía:

Raoul Bott and Loring W. Tu: Differential forms in algebraic topology, Springer Verlag.

Frank Warner: Foundations of differentiable manifolds and Lie groups, Springer Verlag.

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